



SUBSTRATE HOLDING MECHANISM, SUBSTRATE
POLISHING APPARATUS AND SUBSTRATE POLISHING METHOD

TECHNICAL FIELD

5 The present invention relates to a substrate holding
mechanism for use in a polishing apparatus for polishing a
surface of a substrate, e.g. a semiconductor wafer, to make
this substrate surface flat. The present invention also
relates to a substrate polishing apparatus and a substrate
10 polishing method that use the substrate holding mechanism.

BACKGROUND ART

 With progress of technology of fabricating high-
integration semiconductor devices in recent years, circuit
15 wiring patterns or interconnections have been becoming
increasingly small and fine, and spacings between wiring
patterns have also been decreasing. As these wiring
spacing decreases, a depth of focus becomes shallower in
circuit pattern formation by performing photolithography or
20 the like. In a case of photolithography for less than 0.5-
 μm designs in particular, surfaces of semiconductor wafers
on which circuit pattern images are to be formed by a
photolithographic apparatus require a higher degree of
surface flatness because of a photolithography depth of
25 focus. To realize a required degree of surface flatness,
polishing using a polishing apparatus is widely adopted.

 A polishing apparatus of this type has a turntable
with a polishing cloth bonded to a top thereof to form a
polishing surface. The polishing apparatus further has a
30 top ring as a substrate holding mechanism. The turntable
and the top ring rotate independently of each other at